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(54) Compact tool combination

(57) A tool includes a spring (10) received in a handle (1) which has a number of protrusions (11) and projections (12) formed in one end. A slide (2) is slidably engaged in the handle (1) and engaged with the spring (10) and has a number of cavities (21) for engaging with a number of tool bits (90). The spring (10) may bias the tool bits (90) slightly outward of the handle (1). A block (30) has a number of notches (32) for engaging with the protrusions (11) and has a number of depressions (33) for engaging with the projections (12) so as to secure the block (30) to the handle (1). The block (30) has a shaft (38) for engaging with the tool bits (90). The slide (2) and the tool bits (90) may be safely received in the handle (1). The slide (2) has a bore (20) for engaging with the shaft (38).

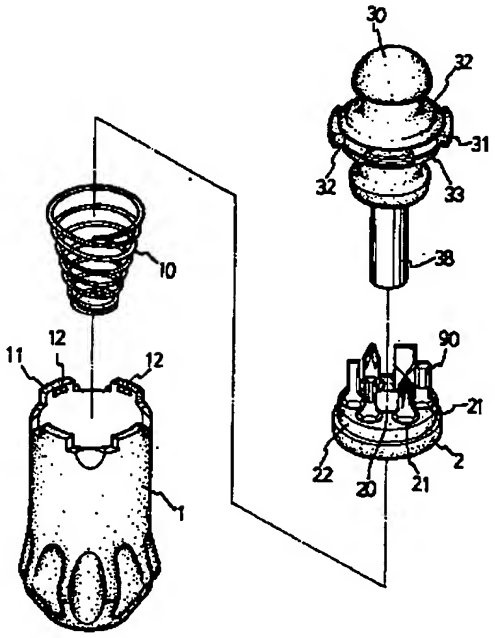

FIG. 1

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Description

The invention relates to a compact tool combination.

Typical screw drivers comprise a shaft for engaging with and for driving a tool bit for driving fastening screws. One type of the screw drivers comprises a number of tool bits for engaging with the shaft and for driving various kinds of screws. However, the tool bits may not be safely protected and will be easily lost.

The invention is to provide a comptact tool combination which includes a number of tool bits that may be safely protected within the handle.

FIG. 1 is an exploded view of a tool combination;
FIG. 2 is a perspective view of the tool combination;
FIG. 3 is a cross sectional view taken along lines 3-3 of FIG. 2;
FIG. 4 is a partial exploded view of the compact tool combination;
FIG. 5 is a perspective view illustrating the application of the compact tool combination; and
FIG. 6 is a cross sectional view taken along lines 6-6 of FIG. 5.

Referring to FIGS. 1-3, a compact tool combination comprises a handle 1 including a hollow interior for receiving a spring 10 and including an open top having a number of spaced upward extending protrusions 11 each of which includes a projection 12 extended radially inward of the handle 1. A slide 2 is slidably engaged in the handle 1 and engaged with the spring 10 and includes a bore 20 and a number of cavities 21 for engaging with tool bits 90. The slide 2 is preferably made of resilient material such that the tool bits 90 may be retained in the cavities 21 of the slide 2. The spring 10 may bias the slide 2 toward the open top of the handle 1 and may move the tool bits 90 slightly outward of the handle 1 (FIG. 4) such that the tool bits 90 may be disengaged from the slide 2. The projections 12 may be engaged with the slide 2 so as to prevent the slide 2 from disengaging from the handle 1. The slide 2 includes a cylindrical surface 22 for engaging with the projections 12 and for allowing the slide 2 to be partially extended ouward of the handle 1.

A block 30 includes a number of ears 31 extended radially outward for forming a number of notches 32 and for engaging with the protrusions 11. The block 30 includes a number of depressions 33 formed between the ears 31 for engaging with the projections 12 of the handle 1 such that the block 30 nay be stably secured to the handle 1. The block 30 includes a shaft 38 extended from one end and having an engaging hole 39 formed in the free end for engaging with the tool bits 90.

In FIGS. 2-3, the shaft 38 may be engaged in the handle 1 and the bore 20 of the slide 2 such that the shaft 38 and the slide 2 lay all be received in the handle 1 so as to form a rather comptact configuration.

In FIGS. 4 to 6, the shaft 38 may be arranged outward of the handle 1 after disengaging from the handle 1. Either of the tool bits 90 may be disengaged from the slide 2 and engaged with the engaging hole 39 of the shaft 38. The shaft 38 and the block 30 may be effectively rotated by the handle 1 because of the engagement between the ears 31 of the block 30 and the protrusions 11 of the handle 1. The slide 2 may be pressed inward of the handle 1 by the block 30. The block 30 may be stably secured to the handle 1 by the engagement between the projections 12 of the handle 1 and the depressions 33 of the block 30. The projections may be formed on the block 30 instead of forming in the handle, and the depressions 33 may be formed in the handle 1 instead of forming in the block 30 such that the block 30 may also be secured to the handle 1 by the engagement between the projections and the depressions.

Claims

1. A tool combination comprising:

   a handle (1) including a hollow interior and including an open top having a plurality of spaced protrusions (11) and including an upper portion having a projection means (12),
   a spring means (10) engaged in the hollow interior of the handle (1),
   a slide (2) slidably engaged in the handle (1) and engaged with the spring means (10), the slide (2) including a plurality of cavities (21) for engaging with tool bits (90), the spring means (10) biasing the slide (2) toward the open top of the handle (1) so as to move the tool bits (90) slightly outward of the handle (1), the projection means (12) being engaged with the slide (2) so as to prevent the slide (2) from disengaging from the handle (1), and
   a block (30) including a middle portion having a plurality of ears (31) for forming a plurality of notches (32) and for engaging with the protrusions (11), the block (30) including a depression means (33) for engaging with the projection means (12) so as to secure the block (30) to the handle (1), the block (30) including a shaft (38) having an engaging hole (39) for engaging with and for driving the tool bits (90), the slide (2) being depressed inward of the handle (1) when the notches (32) of the block (30) are engaged with the protrusions (11) of the handle (1) and when the projection means (12) is engaged with the depression means (33).

2. A tool combination of claim 1, wherein the slide (2) includes a bore (20) for engaging with the shaft (38) and for allowing the shaft (38) to be received in the handle (1).

3. A tool combination of claim 1, wherein the slide (2) includes a cylindrical surface (22) for engaging with the projection means (12) and for allowing the slide (2) to be partially extended ouward of the handle (1).

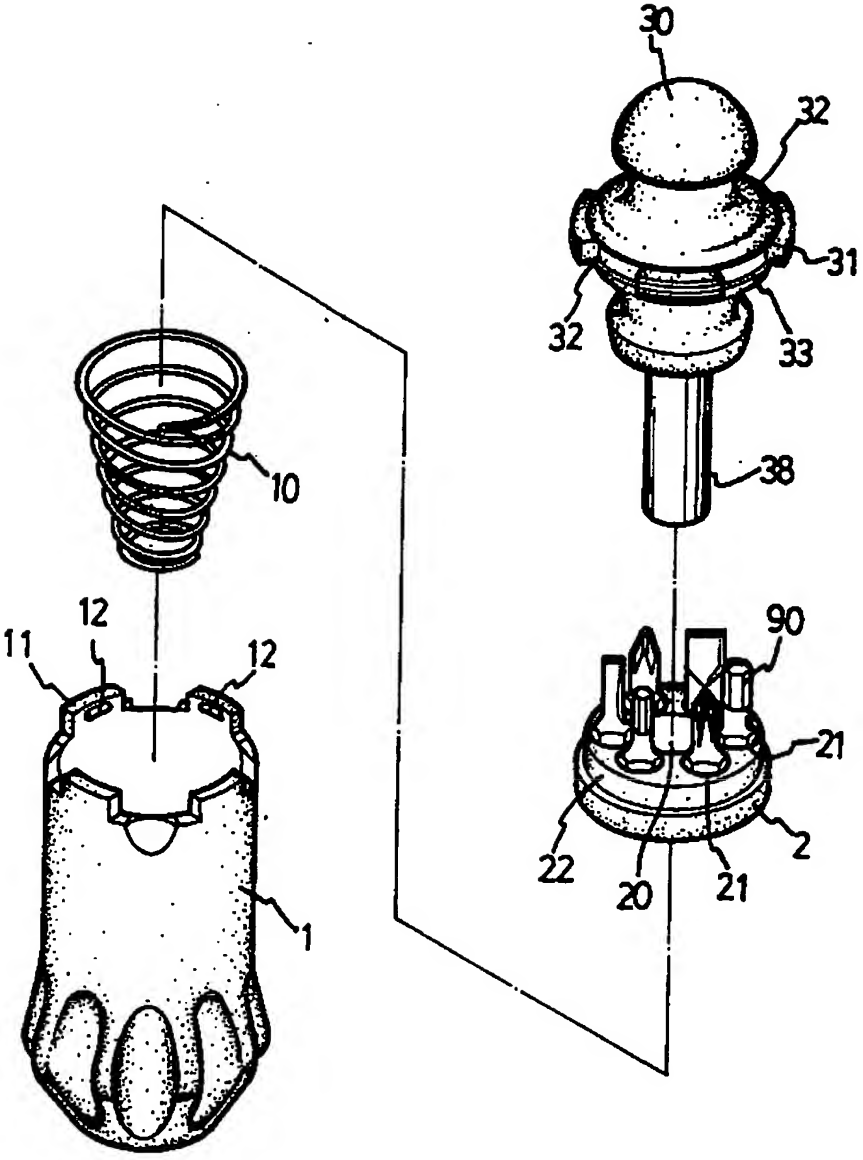

FIG. 1

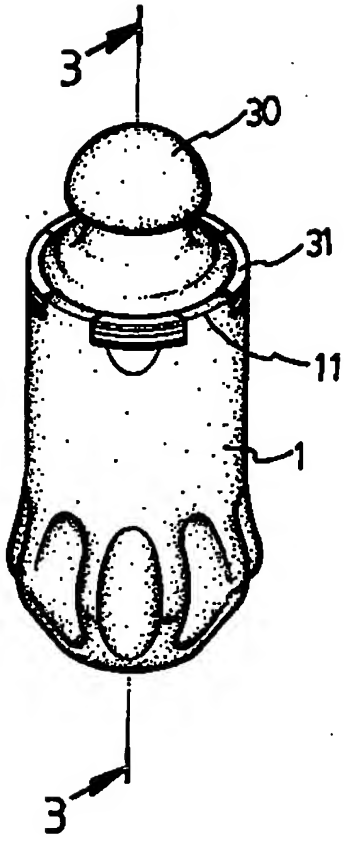

FIG. 2

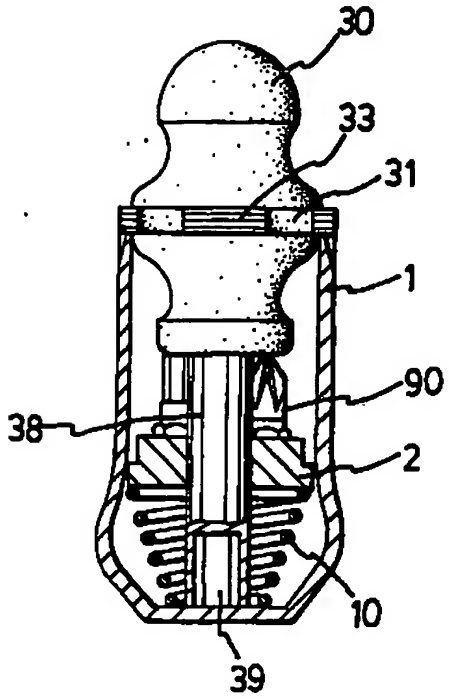

FIG.3

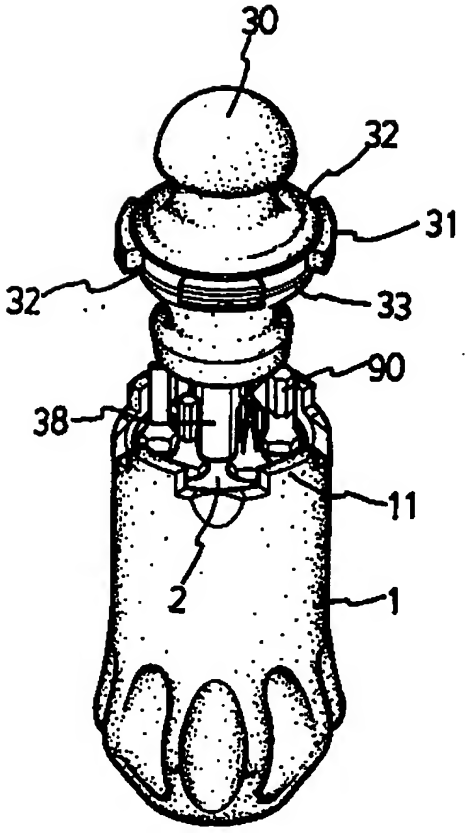

FIG.4

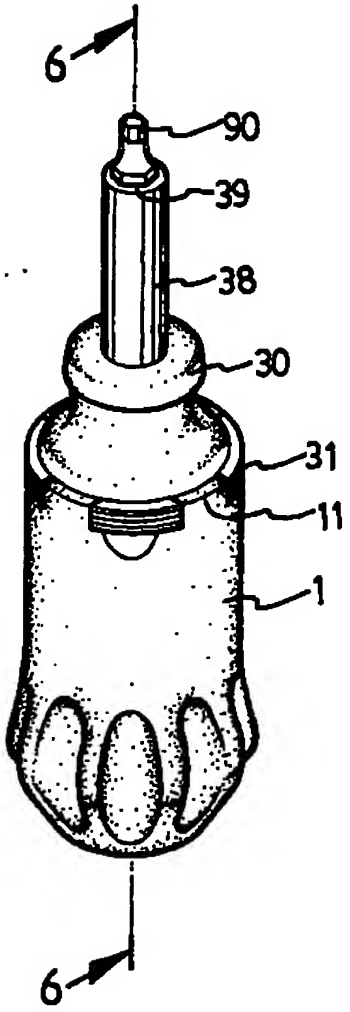

FIG.5

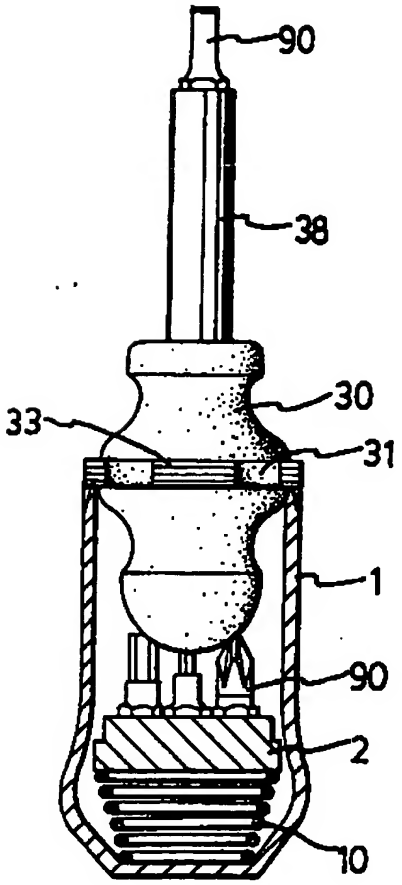

FIG.6

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EUROPEAN SEARCH REPORT

Application Number
EP 97 10 2783

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
P,X	DE 296 08 633 U (LIN) * the whole document * ---	1-3	B25G1/08
A	GB P08446 A (CRANSTON) & GB-A-08446 A.D. 1914 * page 1, line 23 - line 31; figure 2 * ---	1	
A	DE 30 04 958 A (FA. W. HOLLAND-LETZ) * the whole document * ---	1	
A	DE 28 30 082 A (WAKAHOI SEISAKU-SHO CO LTD) * page 8, paragraph 2 * ---	1	
A	US 3 683 984 A (HULL) * column 2, line 56 - line 60 * ---	1	
A	US 4 278 119 A (ELMORE) * figures 1-5 * ---	1	
A	FR 2 429 653 A (AB BAHCO VERKTYG) * page 3, line 34 - page 4, line 5; figures 1,4,5 * -----	1	

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

B25G
B25F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	3 June 1997	Carmichael, Guy

CATEGORY OF CITED DOCUMENTS

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